MYCOTAXON

ISSN (print) 0093-4666 (online) 2154-8889 Mycotaxon, Ltd. ©2018

January–March 2018—Volume 133, pp. 9–13

https://doi.org/10.5248/133.9

Arachnophora longa sp. nov., a freshwater hyphomycete from far north Queensland, Australia

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Abstract—*Arachnophora longa*, collected from submerged wood in far north Queensland, Australia, is described and illustrated as a new species. It is distinguished from other members of the genus by possessing macroconidia with long appendages ("arms").

Key words—anamorphic fungi, biodiversity, dematiaceous hyphomycete, lignicolous fungi, taxonomy

Introduction

During a survey of freshwater fungi on wood in streams in far north Queensland, a distinctive fungus was collected on submerged wood. The conidiogenesis and morphology of the conidia place this fungus in the genus *Arachnophora* Hennebert (Hennebert 1963). However, the fungus shows clear differences from previously described *Arachnophora* species and is therefore described as new to science.

Materials & methods

Samples of submerged wood less than 5 cm in diameter were collected from Oliver Creek, north Queensland, placed into sealed plastic bags, and returned to the laboratory. The collection site had a rocky base with shallow, running water and thick native riparian vegetation. Samples were then incubated in sterile plastic containers and regularly examined for fungi using a Leica MZ7s dissecting microscope. When noted, fungi were photographed, described, and transferred to a microscope slide with

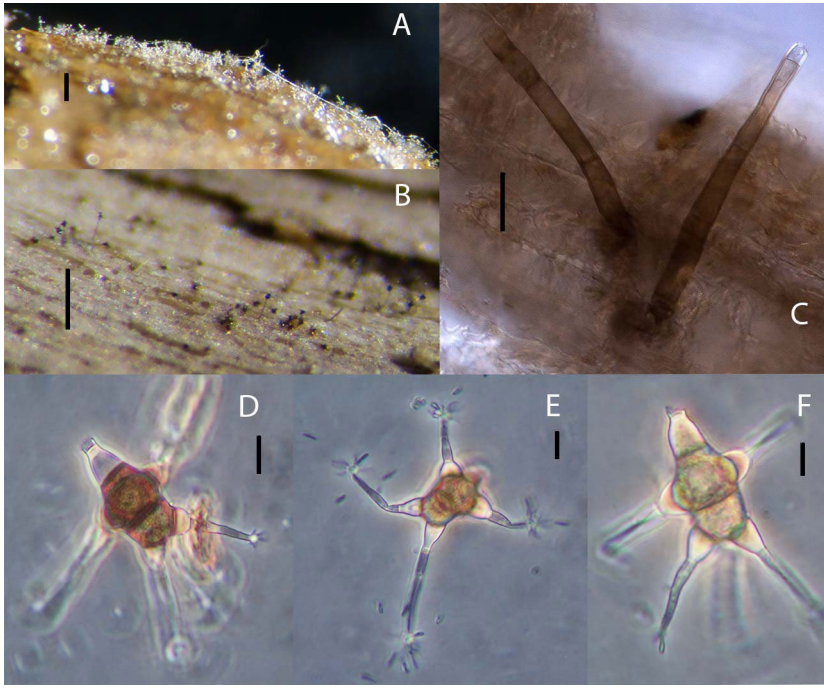

Fig. 1. *Arachnophora longa* (holotype, BRI AQ522463). A: Colonies on natural substrate while fresh. B: Colonies on natural substrate after drying. C: Conidiophores. D–F: Macroconidia with microconidial synanamorph. Scale bars: A, B = 200 µm; C–F = 10 µm.

a drop of distilled water and cover slip. This slide was examined using either a Leica DMLS compound microscope with phase contrast or a Nikon Eclipse Ni with difference interference contrast. Photographs were taken using either a Sony RX-100 or Lumenera Infinity 3 camera. Drawings were made with the assistance of a Nikon Y-IDT drawing tube at 100×.

Taxonomy

Arachnophora longa Fryar & K.D. Hyde, **sp. nov.** Figs 1, 2

MycoBank MB 823958

Differs from *Arachnophora combuensis* by its longer macroconidial arms and its slightly larger microconidia; and from *A. polyradiata* by its fewer but longer macroconidial arms.

Type: Australia, Queensland, Cape Tribulation, Oliver Creek, 16.137°S 145.440°E, on submerged wood, 7 Oct 2015, collector S. Fryar (**Holotype**, BRI AQ522463).

Etymology: Latin *longa,* referring to the relatively long macroconidial arms.

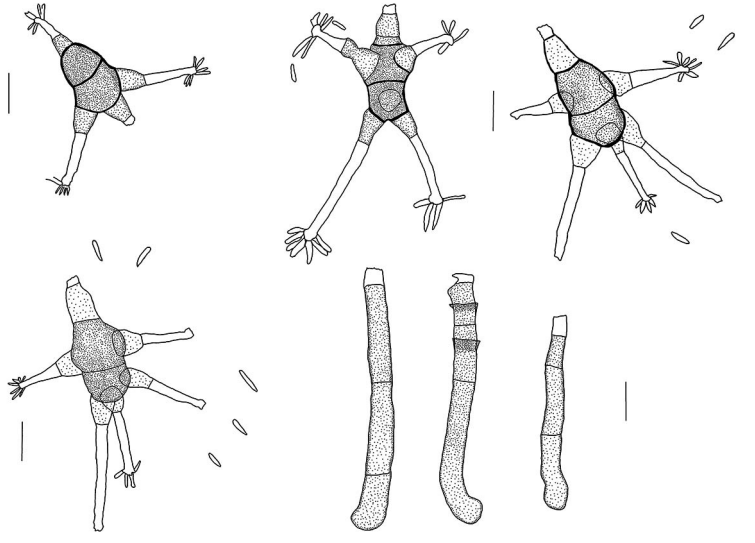

Fig. 2. *Arachnophora longa* (holotype, BRI AQ522463).
Conidiophores, macroconidia, and microconidia. Scale bars =10 μm.

Conidiophores macronematous, mononematous, brown, erect, unbranched, cylindrical, smooth, 1–4-septate, no constrictions at the septa, with percurrent proliferation, slightly bulbous at the base, single, 46–102 × 5–7.5 μm. Conidiogenous cells monoblastic, integrated, terminal, cylindrical, smooth, pale brown to hyaline. Macroconidia staurosporous, acrogenous, solitary, brown, dry, smooth, complex, composed of [i] a basal cell that is obconical, truncate, pale brown, and with a minute basal frill as a result of rhexolytic dehiscence and [ii] an irregular two-celled central body of 17–23 × 11–19 μm; each central cell giving rise to 1–3 brown to pale brown lateral cells, 6–9 × 5–9 μm, each in turn giving rise to a single fertile, tapering, hyaline arm, 16–43 × 2–3 μm, usually aseptate (occasionally 1-septate), 3-5 arms per macroconidium. Synanamorph: the apical cell of each macroconidial arm producing hyaline, aseptate, 5–10 × 1 μm, fusiform to clavate microconidia with minute denticles at their tip.

Comments – *Arachnophora* was established by Hennebert (1963) for the type species, *A. fagicola,* growing on decaying cupules of *Fagus sylvatica.* Currently, there are ten species recognized in the genus. Of these species, *A. longa* most

resembles *A. polyradiata,* which differs by its longer (≤150 µm) conidiophores and more numerous (5-7) and shorter (15-20 µm) macroconidial arms (Mercado Sierra & Castañeda Ruíz 1984, Castañeda Ruíz & al. 1997). Three species—*A. fagicola*, *A. pulneyensis*, *A. uberisporoides*—do not produce a synanamorph (Hennebert 1963, Subramanian & Bhat 1987, Castañeda Ruiz & al. 1997) and are therefore distinct from *A. longa*. Macroconidia of *A. combuensis*, *A. crassa*, *A. dinghuensis*, *A. goanensis*, *A. hughesii*, and *A. polybrachiata* have fewer and shorter arms than *A. longa*, among other distinguishing characters (Révay & Gönczöl 1989, Castañeda Ruiz & Guarro 1999, Pratibha & al. 2011, Leão-Ferreira & al. 2013, Ma & al. 2014, Monteiro & al. 2014).

Arachnophora species are usually found on decaying leaves, wood, bark, or pods on forest floors (e.g., Kirk 1981, Matsushima 1993, Castañeda Ruiz & al. 1997, Pratibha & al. 2011, Ma & al. 2014). However, there have previously been reports of this genus on submerged wood in freshwater habitats (Tsui & al. 2000, Monteiro & al. 2014).

Acknowledgements

We would like to thank the Queensland Government for allowing us to collect samples. We also thank Dr Eric McKenzie and Dr Jian Ma for serving as presubmission reviewers and for providing helpful comments and suggestions.

Literature cited

Castañeda Ruiz RF, Guarro J. 1999 ["1998"]. Two new hyphomycetes from rainforests of Cuba. Canadian Journal of Botany 76(9): 1584-1588. https://doi.org/10.1139/b98-095

Castañeda Ruiz RF, Gams W, Saikawa M. 1997. Three new conidial fungi (hyphomycetes) from Cuba. Nova Hedwigia 64: 473–483.

Hennebert GL. 1963. Un hyphomycète nouveau *Arachnophora fagicola* gen. nov. spec. nov. Canadian Journal of Botany 41(8): 1165–1169. https://doi.org/10.1139/b63-097

Kirk PM. 1981. New or interesting microfungi I. Dematiaceous hyphomycetes from Devon. Transactions of the British Mycological Society 76: 71–87. https://doi.org/10.1016/S0007-1536(81)80010-1

Leão-Ferreira SM, Gusmão LFP, de Almeida DAC, Castañeda Ruiz RF. 2013. Conidial fungi from the semi-arid Caatinga biome of Brazil. Three new species and new records. Nova Hedwigia 96: 479–494. https://doi.org/10.1127/0029-5035/2013/0084

Ma J, Xia JW, Zhang XG, Castañeda Ruiz RF. 2014. *Arachnophora dinghuensis* sp. nov. and *Websteromyces inaequale* sp. nov., and two new records of anamorphic fungi from dead branches of broad-leaved trees in China. Mycoscience 55(5): 329–335. https://doi.org/10.1016/j.myc.2013.11.007

Matsushima T. 1993. Matsushima Mycological Memoirs. 7; 75 p. Published by the author, Kobe

Mercado Sierra Á, Castañeda Ruiz RF. 1984. *Cacahualia polyradiata*, un hifomicete nuevo con conidios estaurospóricos. Revista del Jardín Botánico Nacional, Universidad de la Habana (5)1: 89–101.

Monteiro J, Gusmão LFP, Castañeda Ruiz RF. 2014. A new species of *Arachnophora* from submerged wood in the Amazon rainforest, Brazil. Mycotaxon 128: 127–130. https://doi.org/10.5248/128.127

Pratibha J, Bhat DJ, Raghukumar S. 2011. Four anamorphic fungi (with two new species) from forests of Western Ghats, India. Mycotaxon 117: 269–278. https://doi.org/10.5248/117.269

Révay A, Gönczöl J. 1989. Some dematiaceous hyphomycetes from woody-litter in Hungary. Nova Hedwigia 48: 237–245.

Subramanian CV, Bhat DJ. 1987 Hyphomycetes from South India I. Some new taxa. Kavaka 15: 41–74.

Tsui CKM, Hyde KD, Hodgkiss IJ. 2000. Biodiversity of fungi on submerged wood in Hong Kong streams. Aquatic Microbial Ecology 21: 289–298. https://doi.org/10.3354/ame021289